EXTECH INSTRUMENTS
A FLIR COMPANY

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PRODUCT DATASHEET

# S4500THS Series

## Rugged 4" (111mm) Portable Receipt Printer with Multiple Communications Options

### Rugged, Lightweight

- *Designed to withstand rigors of mobile computing*
- *Lightweight and compact*
- *Robust, contemporary design*
- *Easy to wear all day long*

### Trouble-Free Operation

- *Ready to use – comes complete with paper, adaptor and battery*
- *Over-molding for additional protection*
- *Highly Integrated Arm-7 32 Bit Microcontroller:*
  - *– Flash Memory – Add Logos, Bar Codes, and other Graphic elements*
- *High Capacity Lithium-Ion Battery – More Receipts per Charge*
- *In-field Programming – Update Firmware, Download Fonts and Logos*
- *Drop-in Paper Loading System*
- *12 Month Warranty (including printhead)*
  - *– Optional Extended Warranty Available*

### Multiple Communications Options

- *RS232*
- *Field tried, robust IrDA communication systems included as standard*
- *Optional integrated Bluetooth™*
- *Optional WLAN 802.11b/g*
- *Optional 3-Track Magnetic Card Reader*
- *Optional Smart Card Reader*

### Typical Applications Include

- *Field Service: Invoicing*
- *Route Accounting: Presales and Direct Store Delivery*
- *Ticketing: Transportation*
- *Ticketing: Public Safety*
- *Utility: Invoicing*

## S4500THS Design Details:

**Power:**

- Powered by extra capacity Lithium-Ion battery cartridge (7.4V; 2200 mAh)
- Battery charges internally or externally (in optional 2-bay charger)

**Highly Integrated Microcontroller by ST-Microelectronics:**

- Flash based integrated CPU (ARM-7 32-Bit) contains firmware, resident fonts, rotated fonts, downloadable fonts, graphics, logos, and bar codes
- Manages all the features supported by the printer

**Low Power Precision Regulator Circuits:**

- 8 bit 2 channel A/D circuit to measure system and printer mechanism voltage levels, battery and thermal print head temperature
- Fail safe and CPU watchdog circuits

**Seiko Thermal Print Head:**

- High speed (rated up to 2" per second at 7.2V) and high resolution print
- Easy load clamshell style paper load system with press button release for paper door
- Automatic thermal print contrast control (voltage and temperature dependent)
- Built-in detectors to monitor voltage and paper-out.

**Easy to Integrate:**

- Multiple communication interfaces including RS232, IrDA and Bluetooth™
- MS-DOS and Windows compatible with full-speed handshake
- Print drivers available for Windows 95, 98, 2000, XP, Vista
- Print utilities available for most Mobile Operating Systems (including Windows CE, Pocket PC, WM5 and Palm)

**Special Features:**

- Resident fonts to enable printing from 10 to 26 characters per inch
- Printer is in-field programmable for firmware, font and logo setup
- Optional integrated Magnetic Card Reader and/or Smart Card Reader
- Optional two-bay battery charger

S4500THS in environmental case

S4500THS with Magnetic Card Reader



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## Print Mechanism:

| | |
|---|---|
| **Printing Method:** | Direct Thermal |
| **Print Resolution:** | 203 dpi/ 8 dots mm |
| **Dots per Line:** | 832 |
| **Printing Width:** | 4.1" (104mm) |
| **Paper Feed Pitch:** | 0.125mm |
| **Printer Speed:** | Up to 2" per second (50mm/sec) @ 7.2 Volts (actual print speed is dependent on state of battery, temperature and nature of application) |
| **Number of Heat Elements:** | 1heater/dot, 170 ohms/dot |
| **Head Temperature Detection:** | By thermistor with hardware protection against overheating |
| **Paper-out/Q-Mark/(TOF) Detection:** | By photo interrupter |
| **Operating Voltage:** | 5V |
| **Current Consumption:** | 2.4A @ 64 dots |
| **Reliability:** | 100 million MCTF (mean characters until fail) @ 25% density |

## Operating Characteristics:

| | |
|---|---|
| **Character set:** | ASCII International, PC Line Draw |
| **Additional Character Sets:** | Simplified/Traditional Chinese, Hebrew, Arabic, Cyrillic Russian, and Turkish |
| **Optional Character Sets:** | Downloadable fixed-width fonts |
| **Graphic print:** | Supports 8-bit graphic printing, page printing, custom fonts and logo downloading |
| **Bar code Symbologies:** | |
| **Linear:** | Codes 39, Code128, UCC/EAN-128, Intlv 2 of 5, UPC-A, UPC-E, EAN/JAN-8, EAN/JAN-13, Codabar, |
| **2 Dimensional:** | PDF417 |
| **Supervisory commands:** | Commands available to read battery voltage, buffer status, firmware and hardware version |
| **Memory (Available to User):** | |
| **RAM:** | 256KB + 1MB |
| **Flash:** | 1MB (internal)<br>1MB (external) |
| **Characters per line:** | 40, 52, 69, 80, 92, 104 (s/w command) |
| **Print Contrast:** | Auto and user selectable |
| **Special Print Character Attributes:** | Double high, double wide, bold print, underline print and reverse print |

## Comunicaciones:

| | |
|---|---|
| **Interface:** | |
| **Standard:** | RS232C<br>(up to 115.2KB depending on computer capability)<br>IrDA (up to 115.2KB depending on computer capability) |
| **Optional:** | Bluetooth™ V2.0<br>WLAN 802.11b/g |
| **Dip Switch Selectable Baud Rate:** | 2400 – 115.2KB |
| **Handshaking:** | Hardware (CTS/RTS) and/or Software (XON/XOFF) |

## Print Media:

| | |
|---|---|
| **Media Type:** | Direct Thermal Paper and Tag Stock, Limited Label Support |
| **Paper Width:** | 4.375" (111mm) |
| **Max Roll Size:** | 100' @ OD: 2.0" (Standard paper is Kansaki P390) |
| **Roll Core ID:** | 0.4" |
| **Paper Rolls per Charge:** | ~2 |
| **Total Length per Charge:** | ~219 ft (66m) |

**(For optimum print quality and printer performance, use Extech supplied paper)**

## Power:

| | |
|---|---|
| **Battery:** | Internal rechargeable 2 cell Lithium-Ion (7.4V; 2200 mAh) |
| **Battery Life:** | 80% of original capacity after 300 cycles (typical) |
| **Recharging:** | 3 hours@ fast rate charge (at empty) |
| **External Charging Options:** | |
| **DC Power Pack:** | 100V – 240V AC input, 10V/1.32A output<br>UL listed adapter standard (in-printer charging) |
| **In-Vehicle Charger:** | 10.6 ~ 30V Cigarette Lighter adaptor |
| **Power ON/OFF:** | Power ON/OFF switch, or by raising RTS input; or sending a single character through serial input. Auto power down timer, can be set or disabled through user application. |

## Software:

**Utility Extech Logo Downloading**
**Utility Extech Bluetooth™ Configuration**
**Extech Form Fiesta Page Printing Utility**

## User Interface:

| | |
|---|---|
| **Status indicators:** | 3 LEDs (2 are multi functioning) Power/Communication Battery Status/Charging, Ready/Fault |
| **User switches:** | 2 switches – Power (On/Off), Feed |
| **Connection:** | |
| | RJ type (6 pin) for Data I/O<br>Infra-Red (IrDA) with Ambient Light<br>Bluetooth™ v 2.0 (Optional)<br>WLAN: 802.11b/g (Optional)<br>Magnetic Card Reader (Optional)<br>Smart Card Reader (Optional) |

## Mechanical:

| | |
|---|---|
| **Construction:** | Cycolac KJW Enclosure with Santoprene™ overmold |
| **Dimensions:** | 7.5"W x 6.5"L x 2. 5"H (191.8W x 165L x 63.8H mm) |
| **Weight:** | |
| **Printer Only:** | 1lb 7oz (648g) |
| **Printer with paper and battery:** | 2 lbs 1oz (929g) |
| **Warranty:** | |
| **Standard:** | One year standard |
| **Optional:** | Up to 5 year programs available at extra charge |
| **OEM Products:** | Design services available |

## Enviromental Specifications:

| | |
|---|---|
| **Operating Temperature:** | 14° to 122°F (-10° to 50°C) |
| **Storage Temperature:** | -4° to 140°F (-20° to 60°C) |
| **Charging Temperature:** | 32° to 122°F (0° to 50°C) |
| **Humidity:** | 10 - 90% RH (non-condensing) |
| **Drop:** | Exceeds industry standard for drop |

## Agency Approvals:

FCC: Part 15 Subpart B, Class B
CE: EN60950
CE: EN55022 Class B;
CE: EN61000-3-2;
CE: EN61000-3-3;
CE: EN50024
AS/NZ: 3548 Class B
Complies with EMC Directive 89/336/EEC and Low Voltage Directive 73/23/EEC

Conforms to ANSI/UL STD 60950 and Certified to CAN/CSA STD C22.2 No. 60950-00
CB Certified
ETL Listed, Control # 3046813
IEC 68 Certified
IP54 Rated (with Environmental Case)

## Ordering Information:

The S4500THS series comes standard with IrDA, RS-232, Battery, 1 Paper Roll, Shoulder Strap, Universal AC Adapter (180-minute Fast Charge) and a 1 year warranty that includes the print head.

| | | |
|---|---|---|
| 78628I1 | | S4500THS with RS-232 and IrDA Interface (Universal Adaptor) |
| | [ ] | add "R" for 3-Track Magnetic Card Reader (e.g. 78628I1R) |
| | [ ] | add "S" for Smart Card Reader |
| | [ ] | add "RS" for 3-Track Magnetic Card Reader and Smart Card Reader |
| | -[ ] | add "-1" for Bluetooth option (e.g. 78628I1R-1) |
| | -[ ] | add "-2" for WLAN 802.11b/g option |

Accessories:

| | |
|---|---|
| 756998-2 | Belt Loop System |
| 756984 | IP54 Certified Environmental Case |
| 757351 | Shoulder Strap with Quick Clip |
| 157261 | Universal AC Adaptor (US, UK, EURO, and Australian) |
| 757064 | Spare paper, pkg. of 5 rolls |
| 757064-CASE | Spare paper (Case of 50 rolls) |
| 7A100014 | Spare battery (2200 mAh) |
| 767400-1 | 2-bay battery charger (US plug) |
| 767400-2 | 2-bay battery charger (EURO plug) |
| 767400-4 | 2-bay battery charger (UK plug) |
| 5892RJD9-1 | Coiled Cable Straight Plug (RJ to D9) |
| 151133 | 10.6 ~ 30V In-Vehicle Adaptor (with battery in printer) |

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